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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,789	09/23/2003	Frank M. Steranka	LUM-01-09-01-1D	6404
32566	7590	06/15/2004	EXAMINER	
PATENT LAW GROUP LLP			ROY, SIKHA	
2635 NORTH FIRST STREET			ART UNIT	
SUITE 223			PAPER NUMBER	
SAN JOSE, CA 95134			2879	

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/669,789

Applicant(s)

STERANKA ET AL. 

Examiner

Sikha Roy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 10, 12 and 13 is/are rejected.
- 7) ☒ Claim(s) 5-9 and 11 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities:

Referring to page 1 section [0001] the status of U.S. Patent Application

Ser. No. 10/283,737 should be updated.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 3, 4, 12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent 4,935,665 to Murata.

Regarding claim 3 Murata discloses (column 4 lines 8-60, column 9 lines 21-30 Figs. 3, 5 and 18) a light emitting device comprising a transparent member (lens plate) 31 having a first surface (flat bottom) on which a light emitting diode 2 is positioned, a second surface (side wall) 14 having metallic clean and glossy reflective coating 17 and an exit surface (convex lens surface) 3 wherein light emitted from the diode 2 is directed towards the exit surface.

Referring to claim 4 Murata discloses (Fig.5) reflective coating 17 is disposed on the first surface not covered by the light emitting diode.

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Regarding claim 12 Murata discloses in Fig. 18 that the first surface (bottom surface) on which diode 2 is disposed and the exit surface (convex lens surface) are not parallel.

Regarding claim 13 Murata discloses (column 4 lines 22- 29) the transparent member (lens plate) 3 is made of suitable transparent material selected from acryl resin, glass.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,249,967 to Liu et al. and further in view of U.S. Patent 3,877,052 to Dixon et al.

Referring to claim 1 Liu discloses (column 2 lines 5-50, column 3 lines 35-47 Figs. 1 and 2) a light emitting device comprising light emitting diode 10A comprising a substrate 11, a plurality of semiconductor layers 12,13,14,15 overlying the substrate, a contact layer 16A (cap layer) disposed on the first surface of the semiconductor layers wherein light is extracted through the first surface. A metal layer 17 along with a connection tab overlies a portion of the first surface having an aperture 23 through which light exits.

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Claim 1 differs from Liu in that Liu does not exemplify the metal layer overlying a portion of the first surface to be reflective.

Dixon in analogous art of light emitting diode discloses (Fig. 1 column 1 lines 64 through column 2 line 5, column 4 lines 1-5, 20-25) light emitting diode 10 having optically reflective metal layers 15,16 (typically silver) overlying multi-layer semiconductor structure for reflecting optical radiation coming from the semiconductor. Dixon further notes that the metallic reflecting layer serves the function of reflecting the non-totally internally reflected rays emanating from the semiconductor body back into the semiconductor body thus increasing opportunities for acceptance of these rays into exit (the optical fiber) and correspondingly increasing the efficiency.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the metallic layer overlying a portion of the first surface of the diode of Liu by reflective metal as suggested by Dixon for reflecting the non-totally internally reflected rays emanating from the semiconductor body back into the semiconductor body thus increasing opportunities for acceptance of these rays into exit and correspondingly increasing the efficiency of the device.

Regarding claim 2 Liu discloses (column 3 lines 40-46) the contact layer of p-type gallium aluminum has low absorption and is essentially transparent to the range of wavelength of the emitted light.

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Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,935,665 to Murata and further in view of U.S. Patent 4,249,967 to Liu et al. and U.S. Patent 3,877,052 to Dixon et al.

Claim 10 essentially recites the limitations of claims 3 and 1. Murata discloses all the limitations of claim 3 but Murata does not disclose the specifics of the diode comprising transparent substrate, plurality of semiconductor layers transparent to light emitted from the first diode, a contact reflective of light emitted by the diode wherein the plurality of semiconductor layers are disposed between the transparent substrate and the contact.

Liu and Dixon disclose as in claim 1, light emitting diode comprising transparent substrate, plurality of semiconductor layers transparent to light emitted from the first diode, a contact reflective of light emitted by the diode wherein the plurality of semiconductor layers are disposed between the transparent substrate and the contact. Furthermore Liu discloses (column 1 lines 51-55) that this configuration of light emitting diode incorporating hetero-structure on a substrate permits greater efficiencies and simplified manufacturing methods.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the first light emitting diode as disclosed by Liu and Dixon in the device of Murata for providing greater efficiency and simple manufacturing method.

Allowable Subject Matter

Claims 5-9 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 5 the prior art of record fails to teach or suggest the light emitting device with all the limitations as claimed in claim 5 and particularly the limitation of the first and third surfaces forming a wedge with an apex opposite the exit surface and the second and the fourth surfaces being substantially parallel.

Claims 6-9 would be allowable because of their dependency status from claim 5.

Regarding claim 11 the prior art of record fails to teach or suggest the light-emitting device with all the limitations as claimed in claim 11 and particularly the limitation comprising the submount attached to the contact of the light emitting diode.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 3,991,339 to Lockwood et al. and U.S. Patent 6,355,946 to Ishinaga disclose light emitting device comprising diode with reflector. U.S. Patent 4,675,058 to Plaster and JP 0239578 to Bito disclose light emitting diode with epitaxial semiconductor layers.

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Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (571) 272-2463. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S.R.
Sikha Roy
Patent Examiner
Art Unit 2879

Wmz 6/10/04
Mariceli Santiago